ABSTRACT

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Title of diploma thesis: Determination of neopterin in biological material

The aim of this diploma thesis is to create an overview of present methods, which can be used for the determination of neopterin in biological material. Neopterin is a pteridine derivative, which belongs to the group of unconjugated pteridines. Its biosynthesis is based on the guanosinetriphosphate and is stimulated by the activity of the IF-γ. Neopterin is a useful marker of the activation of the immune system, it is also an important prognostic indicator of several diseases e.g. in malignant diseases, in HIV-positive patients or in patients after transplantation. Elevated levels of neopterin are found in many pathological states such as in acute and chronic viral infections, in tumor diseases, HIV patients, patients after transplantation with rejection, but also in certain neurological, cardiovascular and autoimmune diseases. The sample preparation procedure is an important part in neopterin analysis. For this reason, sample preparation methods are in this thesis discussed. Chromatographic techniques as HPLC and UHPLC and immunoassays as ELISA and RIA are the main methods used for neopterin determination.